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Promoting Lasting Ecological Citizenship Among College Students

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Promoting Lasting Ecological Citizenship Among College Students

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ABSTRACT

Declines in environmental literacy and civic and political activism among youth suggest the need for an increased focus on sustainability in schools and the advancement of ecological citizenship among students. Andrew Dobson conceives of ecological citizens as individuals that participate in a range of civic and political activities and integrate the notion of sustainability into daily habits and lifestyle choices. Colleges and universities have an opportunity to foster a sense of citizenship among students in a multitude of ways and to utilize ecological citizenship as a promising policy objective in sustainability plans and policies. This study examines the extent to which ecological citizenship is discussed in institutional sustainability plans and policies as well as what substantive actions higher education institutions have taken to foster a sense of lasting citizenship among students. The study sample consists of 24 colleges and universities in the United States. Several indicators that reflect the basic features of what such ecological citizenship entails were chosen in advance to studying the actions of various schools. The results demonstrate that schools discussing ecological citizenship in their formal sustainability commitments generally performed more sustainable and citizenship-oriented actions overall than those that did not. In addition, schools that formally acknowledged ecological citizenship demonstrated a stronger commitment to the values associated with sustainability and citizenship as well as an explanation for why sustainability on campus matters, suggesting a more substantive vision behind what they are doing.

CHAPTER 1: INTRODUCTION

In the past one hundred years, both the physical planet and the lifestyles of its inhabitants have undergone a remarkable transformation. With the advent of the industrial revolution, advances in technology have allowed millions to lead lives far easier than those of their ancestors. However, only recently have we as a society been confronted with the fact that this human ingenuity has many unforeseen consequences. Moving forward, we must implement significant changes, both physical and behavioral, to ensure the preservation of the environment for future generations. The university setting can and should play a significant role in this change.

Historically, universities have been successful centers of social change. With the integration of women and African Americans into the higher education system, universities demonstrated their leadership potential within larger society. Now the world faces "unprecedented and increasingly urgent challenges associated with accelerating environmental change, resource scarcity, increasing inequality and injustice, as well as rapid technological change" (Stephens et al, 2008:1). As a result of these rapid changes, new opportunities within higher education are emerging.

In the last decade, sustainability has become a shared goal among most higher education institutions in the United States, however, while many higher education institutions advocate for environmental protection under the umbrella of sustainability, many of their plans and policies fall short when it comes to truly making a difference outside the realm of the institution. In fact "much about the ways in which the education system operates and teaches will have to change if we are to produce leaders of

sustainability" with highly developed skills and values (McNamara, 2008:28). Improving the overall quality of our environment and creating a society rooted in justice and fairness first requires recognition of the tremendous influence college and university students will have in tackling these issues post-graduation. Providing students with opportunities for involvement in sustainability both on and off campus can lead to positive long-term changes in attitudes and behaviors and will help create graduates that are ecological citizens. Furthermore, the university can instill ecological values in students by modeling what sustainable institutional actions look like, through the adoption of sustainable operations and by integrating sustainability into the curriculum.

As higher education is called upon to meet the challenge of shaping student leaders, it is essential that institutions create plans and policies with long-term visions and goals that extend beyond the physical campus environment and target the future role of students within society. This means that colleges and universities have to do more than embrace sustainability in exceedingly cautious and narrow ways (Hempel, 2012). As environmental studies Professor Monty Hempel points out "the problem arises from a dearth of campus efforts to envision sustainability as something much bigger and deeper than, say, green energy, recycling, and hiring of sustainability coordinators. Very few campuses are generating stories about the careful integration of energy and environmental initiatives with those of equity and social justice, or with the redesign of economic institutions" (Hempel, 2012). Rather than committing to a full-spectrum treatment of sustainability, progress has been limited within many institutions to shallow visions focusing solely on greening the campus and not enough on the role of the individual student. Colleges and universities should make efforts to actively involve and

educate all students and not simply those studying in environmental fields. Sustainability requires more, however. In the 21st Century we need a new kind of education in which students are taught to become knowledgeable and civically active agents of social and environmental change, capable of making ethical judgments and protecting the environment.

This paper explores the notion of ecological citizenship as a new approach to designing and creating sustainability policies in higher education institutions. Ecological citizenship as a policy objective offers the potential for deeper and more comprehensive commitments and actions from academic institutions and for a transformation in how higher education approaches and conceives of sustainability.

Overview of Study and Core Research Questions

Many higher education institutions are expanding their role in terms of defining and addressing sustainability, and in connecting the environmental values of graduates to their future actions. This paper examines to what extent colleges and universities in the United States are committed to shaping citizenship among students, as demonstrated through the institutions' sustainability plans and policies. An in-depth analysis of the content of college and university sustainability policies and plans will evaluate whether universities that do dedicate a portion of their plans to ecological citizenship represent model institutions that other schools should emulate. Ecological citizenship is a relatively new philosophy, and schools are approaching it from many different directions. Therefore, discussion of some of the specific strategies and steps some institutions have taken to further this objective should serve as a useful guide for other institutions, as they

design and revise their own plans. Fostering environmental leadership and citizenship among students is an extremely challenging task, yet it is crucial to a more sustainable future.

This thesis examines a sample of 24 colleges and universities in the United States, then provides a comparative study of the twelve institutions that acknowledge student ecological citizenship in their sustainability plans and policies and the twelve that do not. Given an account of how and why campuses should foster ecological citizenship, it then provides an assessment of the extent to which campuses are both addressing and achieving this goal. I carry out this assessment by looking at the content of institutional sustainability plans and policies and assessing schools according to several indicators of ecological citizenship that reflect the basic features of what such citizenship entails.

The 2011 *College Sustainability Report Card* was utilized to correlate the overall sustainability of an institution with their stated objectives relating to ecological citizenship in identified sustainability plans and policies. The *College Sustainability Report Card,* published by the Sustainable Endowments Institute, provides a sustainability evaluation of campus operations and endowment investments ("College Sustainability Report Card", 2011). The *Report Card* assesses 300 public and private colleges and universities in the US with the largest endowments. Information regarding the commitment to sustainability at each school is gathered through a review of report card ratings, as well as voluntary responses of school administrators to independent surveys. A school's overall grade is calculated based on how a school performs in each of the nine equally weighted categories including administration, climate change & energy, food & recycling, green building, student involvement, transportation, endowment

transparency, investment priorities, and shareholder agreement ("College Sustainability Report Card," 2011). A total of 48 indicators are used to evaluate performance within the categories ("College Sustainability Report Card," 2011).

In addition to the *Report Card,* AASHE's (Association for the Advancement of Sustainability in Higher Education) STARS program is also used to gain more specific information on what substantive actions colleges and universities have taken to advance ecological citizenship, whether or not it is explicitly identified as a direct policy goal. The Sustainability Tracking, Assessment & Rating System (STARS) is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance and gauge relative progress (AASHE, 2012). The STARS program evaluates four broad areas of sustainability including: (1) education & research, (2) operations, (3) innovation, and (4) planning, administration & engagement (AASHE, 2012). A number of subcategories and credits exist within each of these main categories. Institutions participating in the program can earn one of four levels of STARS Ratings: Bronze, Silver, Gold, and Platinum (AASHE, 2012). Any college or university located in the United States or Canada can register to participate in the STARS program (AASHE, 2012)

It is important to acknowledge that both STARS and the *Sustainability Report Card* contain self-reporting components and could be subject to biased reporting from institutions. Therefore, these sources were mainly used to support additional independent research gathered from institutional sustainability plans and policies, publications, and school's websites. In addition, the *Sustainability Report Card* suspended the program in 2012 due to changes in funding. Therefore, the scores only reflect evaluations from the

2011 report card year. However, the scores from both the STARS program, as well as the *Report Card,* were able to provide valuable information on the overall sustainability goals and actions of the schools involved in the study, and to identify potential models.

Some of the core research questions that will be addressed in this study include the following:

1) To what extent do schools discuss ecological citizenship in their sustainability plans and policies?
2) Which colleges and universities explicitly state goals for shaping ecological citizenship among students and what are some trends and themes amongst these goals?
3) Do schools that discuss ecological citizenship in their sustainability plans and policies receive higher overall *Sustainability Report Card* and STARS scores than those that do not?
4) Do the actions of the schools involved in the study sample emphasize the three components of ecological citizenship including; environmental literacy, civic and political activism, and sustainable behaviors?

CHAPTER 2: COLLEGE STUDENTS: THE FUTURE OF A SUSTAINABLE SOCIETY

College students can and should be the future of a sustainable society. Universities can be instrumental in this change, as they have the opportunity to mold

future leaders. College students are the ideal demographic to target for instilling environmentally responsible behaviors and attitudes, as they are old enough to synthesize information, yet not necessarily set in their ways. Furthermore, new habits and perspectives can be easily shaped throughout one's college career, since students remain part of the campus life for a fixed number of years. Given the urgency of addressing environmental issues, the unique educational setting of higher education institutions, and the significant future role of college students as societal leaders, students should be taught to practice sustainable habits while in school and to develop a set of lasting environmental values. Higher education must first prepare students with the necessary skills to be agents of change.

Despite the efforts of some institutions to further the goal of sustainability, studies indicate substantial declines in adolescents' personal responsibility and literacy regarding the environment, suggesting the need for a new approach. Laura Wray-Lake, Constance Flanagan, and Wayne Osgood examined trends in adolescent's environmental attitudes, beliefs, and behaviors across three decades starting in 1990. The results of their study indicated that while environmental concerns of adolescents increased during the early 1990s, they have "decline[d] across the remainder of the three decades," necessitating a "renewed focus on young peoples' views" (Wray-Lake, Flanagan & Osgood, 2008: 3). The most noteworthy trends regarding youth's environmental attitudes include dramatic declines in "the sense of personal responsibility for the environment, conservation behaviors, and belief that resources are scarce" (Wray-Lake, Flanagan & Osgood, 2008: 3). In general, youth in the United States have shifted their mindset away from accepting personal responsibility for environmental issues and have become increasingly apathetic.

Formal education has an important role to play in terms of addressing this problem, but in order to mold students into sustainability leaders and agents of change, it is essential that institutions first adopt well-conceived policies and model what it means to act in a socially responsible manner. Effective design of a university environmental policy is critical to the success of making students lifelong environmentalists and ecological citizens. The key to advancing the goal of long-term sustainability is by planting the seed of ecological citizenship among college-age students. While environmental literacy is an important component of fostering this sense of ecological citizenship, providing students with a basic understanding of environmental issues may not be sufficient in shaping ecologically minded citizens in the long-term.

The permanent instillation of values and attitudes regarding the natural environment is of critical importance. While many institutional plans recognize environmental literacy and education as an appropriate policy goal, environmental political theorists Andrew Dobson and Derek Bell argue that part of education's role in our world is to promote environmental citizenship, something which requires deeper commitments and responsibilities from higher education institutions. While it is one thing to study the environment from the perspective of different disciplines, it is quite another to develop a sense of duty and responsibility towards environmental protection. Dobson and Bell state that colleges and universities are well positioned to serve as political agents for transformation by encouraging students to become citizens with green consciousness, who take action by becoming more responsible and environmentally just (Dobson and Bell, 2006). They think higher education has the responsibility to develop future generations of leaders and that colleges should equip students with a range of insights.

For instance, encouraging civic and political involvement are particularly important in shaping an enduring sense of activism and citizenship among students, not least because political and civic involvement and education among young people in the United States has also decreased.

William Galston, Professor of Civic Engagement at the University of Maryland, notes that declines in political engagement have been particularly notable in recent years. However, a renewed interest in recent presidential elections may demonstrate a reversal of some established trends (Galston 2007:623). Volunteering increased in 2006, while trust in government and major social institutions remained low. Despite growth in formal education attainment of the US, levels of political knowledge have been relatively stable for decades, suggesting that schools must adopt more innovative and engaging approaches to political and civic education (Galston 2007:623). (Galston 2001:217). Service learning, which combines community-based civic experience and classroom reflection, is a promising tool in the higher education curriculum that can solidify civic and political knowledge and involvement in a meaningful way (Galston 2001:217). Service learning courses can help fulfill the vision of ecological citizenship advocated by Andrew Dobson and Derek Bell, in which citizens are both educated on environmental issues and exhibit a green consciousness that facilitates sustainable action.

CHAPTER 3: ECOLOGICAL CITIZENSHIP: A REVIEW OF LITERATURE

What is Ecological Citizenship?

Green theorists have recently begun to "formulate the connections between democracy, sustainability, and individual rights and responsibilities in terms of 'environmental citizenship'" (Bell and Dobson, 2004). Andrew Dobson stresses what it means to be an ecological citizen including certain responsibilities to protect the environment in ways that extend beyond our own narrow self-interests. The notion of ecological citizenship is largely duty-based rather than rights-based. Dobson along with Mark Smith, professor at Open University in the UK, sees ecological citizenship as contributing to a re-moralising of politics. In the words of Smith, ecological citizenship calls for a "new politics of obligation" according to which "human beings have obligations to animals, trees, mountains, oceans, and other members of the biotic community" (Smith, 1998:99). Some of the defining characteristics and motivations of an environmental citizen include a commitment to justice and the common good, an altruistic concern for the environment, as well as an understanding that our actions can have consequences for the environment which cannot be ignored (Bell and Dobson, 2004).

Dobson suggests that the principal responsibility of an ecological citizen is "to ensure that [one's] ecological footprint does not compromise or foreclose the ability of others in present and future generations to pursue options important to them" (Dobson 2003:91-92). Dobson's account of citizenship incorporates notions of justice, fairness, and equality and the consideration of the long-term impacts of our actions on future generations. While the literature on ecological citizenship is diverse, the common theme throughout is a general commitment to the health and well being of both the human and non-human world and the recognition that these two worlds are intimately related. As

Gill Seyfang succinctly puts it, ecological citizenship simply entails "reducing one's unsustainable impacts upon the environment and other people" (Seyfang, 2005:297).

Dobson argues that ecological citizenship contrasts fundamentally with standard accounts of citizenship and makes assumptions about the nature of a good society. Ecological citizenship emphasizes that "the private sphere is as much a legitimate site of citizenship activity as the public sphere" (Dobson, 2000:1). In other words, the role of the citizen should not be conceived as something that is solely relevant to the public sphere that defines collective life. For instance, private consumer behaviors such as reducing energy use are an important component of ecological citizenship, yet they are not typically considered in a traditional definition of citizenship, which emphasizes the rights of the individual. However, private consumer actions can have significant consequences for the environment when considered collectively. If our private and economic actions have collective environmental consequences, then the private realm should also be conceived as relevant to our political obligations, especially considering "it is an arena in which we exercise power over others (often distant others) by using more than our fair share of ecological space/environmental resources" (Bell and Dobson, 2004). In addition, ecological citizenship bridges the divide between "citizen" and "consumer" preferences (Sagoff, 1988) in that many of our sustainable consumer behaviors are actually motivated by citizen-like values rather than self-interested preferences (Seyfang, 2006:394). Private actions such as consumption, investments, and everyday lifestyle choices are significant in terms of our environmental impact and ecological footprint. Still, changing private consumer behaviors remains an insufficient goal if we are to work towards creating a truly sustainable society. The public and private dimensions of the

individual both must be considered if we are going to fulfill our obligations to environmental protection. The political arena and civil society are realms in which the practice of ecological citizenship can and should take place.

Ecological citizenship assumes a public sphere as populated by active, rather than passive, citizens. In the passive notion of citizenship, voting is the primary means by which individuals are involved in decision-making as citizens. This narrow and politically liberal conception of democracy undervalues the power of the public realm and often fails to fully engage the public in meaningful ways. An active citizenry seeks more than liberal self-interested individuals. A government that responds solely to the private interests of the individual will be insufficient for manifesting successful environmental change. Professor David Marquand has written that advocates of "active citizenship" are right "in laying stress on duty, action, and mutual loyalty" and that the "civic republican tradition has more to say to a complex modern society…than the liberal individualist one" (Marquand, 1997:50). The civic republicanism tradition in political thought emphasizes the importance of participation in civic and political life, while the liberal individualist model views government as an entity that should simply be responsive to individuals pursuing their private interests. Given the problematic decline in the general public's sense of civic and political responsibility, an ecological citizenship model that stresses duty and action especially in civic and political life is arguably more suited for the times, and can facilitate a needed cultural shift. It is a model necessary for a modern age in which many people have lost touch with nature and lack a sense of personal responsibility and stewardship for the environment. More active involvement in

civil society and the political decisions impacting the environment and society is an essential component of ecological citizenship.

The ecological citizen is engaged in civil society, which may include environmental NGOs and local community groups, as well as political actions such as attending town meetings and supporting political parties. These actions can empower individuals to make a difference or express themselves in multiple arenas (Bell and Dobson, 2004). It is important that citizens are vocal in terms of sharing environmental knowledge, values, and experiences so that others can become more informed and their judgments and values may be in turn be transformed. Furthermore, this type of active, public involvement is premised on the notion of universal duties to the environment and to others (Dobson, 2000:1). The promotion of activism as a component of citizenship is essential; especially because the dominant and passive form liberal citizenship has been ineffective in tackling environmental problems. (Bell and Dobson, 2004)

Central to ecological citizenship is the assumption that behaviors based on altruism and citizen values can be more valuable and influential than behaviors motivated solely by monetary incentives or self-interest. Andrew Dobson argues that one reason government has failed to facilitate sustainable change is largely due to the fact that "markets have become the origin and legitimating source of policy" and advancing technology and endless growth are not just considered possible, but desirable (Dobson, 2011:3). As a result, environmental behavior change policy is now "dominated by fiscal incentives and disincentives" (Dobson, 2011:3). Relying solely on fiscal incentives to encourage sustainable behavior change will produce an insufficient amount of environmental protection, as once the incentives are removed, people are likely to return

to their original behaviors. A society based on the notion of ecological citizenship is filled with individuals who adopt a mindset of stewardship and act for reasons that extend beyond individual self-interest. Furthermore, a commitment to ecological citizenship as a policy goal requires a focus on long-lasting and sustained environmental behaviors rather than short-term objectives. Economic approaches to behavior change also fail to recognize that sustainability can and should involve ethical judgments. Our decisions and actions affecting the environment can be intimately tied to values, personal connections, and consideration of the public good. However, economic incentives can lead us to conceive of our actions in isolation and with a self-interested mindset.

Fostering Lifelong Civic and Political Advocacy

Colleges and universities can do a number of things to foster the notion of ecological citizenship. For example, past literature suggests that a student's experiences in college can have a profound impact on future volunteer behavior. Astin *et al*. found that volunteering six or more hours while in college nearly doubles the chances that an individual will be involved in volunteer work years later (Astin, 1999). Furthermore, studies have found that those who complete college have 3.4 more instances of volunteering per year compared to those who did not attend (Brown and Ferris, 2007). While volunteerism can sometimes be motivated by self-interest, such as enhancing one's career, many people choose to volunteer at particular organizations due to the positive experiences of other volunteers, as well as the reputation of the organization (Grube and Piliavin, 2000). Furthermore, student involvement rises when schools facilitate volunteer work. Among college students, "38% whose schools arrange work volunteer, compared

to 13% among those whose schools do not make volunteer arrangements" (Andolina, Jenkins, Zukin & Keeter, 2003:278).

Political participation is also an important component of ecological citizenship and is critical for the legitimacy of democracy, yet little research has been done on how political competencies can be developed and promoted in students (Beaumont et al, 2006). Researchers Elizabeth Beaumont, Thomas Ehrlich, and others found that well-designed courses focusing on political engagement can significantly boost democratic participation and future political activity. Low levels of political activity among young Americans, including college students, are widely recognized as problematic, yet our understanding on how to increase political understanding and involvement among young people is surprisingly limited (Beaumont et al, 2006). The researchers Elizabeth point to the fact that political participation has focused narrowly on the activity of voting "rather than on the multiple dimensions of responsible political engagement…such as the understanding, skills, and motivations that support and enhance many forms of active democratic citizenship" (Beaumont et al, 2006:1). Their research involved conducting a pre- and post-survey of students involved in "The Political Engagement Project," which studied the effects of 21 different courses and programs on a diverse group of undergraduates and US colleges and universities. Several campuses infused political education and engagement tactics into a variety of disciplines and courses on campus and institutionalized the tenets of political engagement ("Political Engagement Project"). On average, all students participating in the interventions increased their political knowledge and skills as well as expectations for participating in a range of future political activities. The results support the idea that well-designed courses and programs can effectively

promote political engagement among a diverse range of undergraduates. (Beaumont et al, 2006)

A study conducted by Scott C. Seider, Susan Gillmor, and Samantha Rabinowicz considered the impact of the SERVE Program, which is a community service-learning program at Ignatius University, on participating students' expected political involvement. The authors found that participating students demonstrated statistically significant increases in their expected political voice in comparison to peers in a control group (Seider et al, 2012). Qualitative interviews with SERVE participants revealed that the program "increased students' awareness of political and social issues; heightened their commitment to philanthropy; fostered their interest in pursuing socially responsible work; and strengthened their commitment to working for social change" (Sedier et al, 2012:44). This study demonstrates that the most effective citizenship classes are those "underpinned by the core principles of experiential and service learning, whereby knowledge, participation and deliberation are linked together in the promotion of active citizenship" (Kisby and Sloam, 2009:313).

John Annette argues in his paper "Character, Civic Renewal and Service Learning for Democratic Citizenship in Higher Education" that service learning is an essential component of citizenship education, as it encourages civic participation as well as the development of moral and civic virtues and political knowledge (Annette, 2005:337). Service learning in college can serve as a bridge for building more democratic citizenship within civil society (Annette, 2005:334). Encouraging community involvement and work on local sustainability initiatives can help solidify behaviors of activism, and help students overcome some of the initial barriers to civic participation. Service learning has

to potential to provide a foundation for civic and political education and could be an important component of any program for ecological citizenship.

Advancing Ecological Citizenship as a Campus Policy

Andrew Dobson argues that government has a key role to play in terms of promoting sustainability citizenship. He states that government should "provide greater opportunities for citizens to participate in environmental policymaking, make clear the ethical and normative questions at stake, provide support for grassroots initiatives, create more opportunities for civic engagement, and provide appropriate funding streams and build social capital" (Dobson, 2011:3). However, colleges and universities are also important sites for fostering the transformation to a greener society. Higher education institutions in many ways represent a microcosm of society; changes we desire in our government and society can be shaped within the university setting. Colleges and universities can serve as (ideal models of sustainability as well as) literal learning laboratories for communities and students. While past studies of ecological citizenship have examined the theoretical justification behind ecological citizenship and its use as a policy objective within government, little attention has been paid to how higher education, a model of larger society, can foster ecological citizenship among students and weave citizenship into an institution's formal commitments and actions.

In her paper "Promoting Ecological Citizenship: Rights, Duties and Political Agency," Carme Melo-Escrihuela argues that ecological citizenship "requires not only discussion about the means and activities that will precede the environmental enlightening of citizens" such as "rights of participation, democratic deliberation or

duties toward the non-human world" but that we must also consider "possible agents for the transformation of citizenship into ecological citizenship" (Melo-Escrihuela, 2008:128). In contrast to Andrew Dobson, who argues that government has a key role to play in terms of promoting sustainability citizenship, Carme Melo-Escrihuela argues that contemporary states may not be ready to advance ecological citizenship, but that the transformation into a green state is necessary for the full extent of ecological citizenship to be realized. Thus, one of the current problems with citizenship in the context of modern democracy is that "state-based accounts of citizenship and environmental policy are addressed to individuals, ignoring the socio-economic conditions" and political dimensions of current unsustainability (Melo-Escrihuela, 2008:128). Fortunately, while government may be deficient in shaping ecological citizens and creating a sustainable society, the university setting is an unexplored space "where more community-oriented" and "just practices of ecological citizenship can be tried and tested" (Melo-Escrihuela, 2008:128). Not only can universities serve as an ideal model of government and society, they can also train graduates to be future citizens and leaders of a sustainable society.

Sverker Jagers and Simon Matti attempt to fill the gap in empirical research on whether ecological citizenship is a politically viable policy approach for promoting broad societal behavior change and personal responsibility for the environment (Jagers and Matti, 2010:1056). In order to shed light on the feasibility of cultivating ecological citizens," Jagers and Matti sent a survey to 4,000 Swedish households to determine the extent to which "people in general hold values and beliefs in line with what is expected of ecological citizenship." (Jagers and Matti, 2010:1055). The study found that a significant proportion of the respondents do demonstrate values consistent with ecological

citizenship including "non-territorial altruism and the primacy of social justice" (Jagers and Matti, 2010). These results provide preliminary support for the use of ecological citizenship as a theoretical model for behavioral change. However, citizens in the United States are likely to hold environmental values that differ from the Swedish population. Improvements in environmental education in the United States and encouragement of active civic and political involvement are likely necessary precursors. A similar study could be done in the United States to determine how citizen values compare to those of Sweden.

Alena Buko contends in her Master's thesis that it is essential to "treat individuals not only as consumers but as citizens, since it allows them foster responsible attitudes and exercise sustainable behaviour towards the environment and society" (Buko, 2009:3). In order to shed light on the practical effectiveness of ecological citizenship in contrast to other policy strategies, a comparative analysis of six case studies was done where policies based on citizen preferences compared to other policy alternatives including fiscal incentives. For example, Buko makes the comparison between a voluntary ban on plastic bags in the town of Modbury, England that appealed to the responsible, altruistic citizen, and a levy on plastic bags in Ireland that sought behavior change based on economics incentives. Modbury was England's first plastic-free town and it achieved this through a rigorous educational campaign that included a film highlighting plastic pollution in oceans. The film facilitated a discussion and subsequent ban on plastic bags, which was supported by the majority or residents and was implemented nearly overnight. Citizens of Modbury, England are likely to decline plastic bags because they understand their impacts on a global level. In contrast, Irish citizens pay a fee on plastic bags, and Buko

argues that it is probable that "Irish consumers would again use free plastic bags, as they would not be economically incentivized to do otherwise" (Buko, 2009:33). Policies based on the notion of ecological citizenship can be successful in the long-term and can encourage more civic activism. Furthermore, programs based on altruism and stewardship have shown that "ecological citizens aspire not only to improve the state of the environment, but cure other maladies, like environmental injustice [and] social disintegration" (Buko, 2009: 47). This study demonstrates that, like Modbury, campuses may also be capable of fostering citizenship as a matter of policy. Fostering behavior change among students may not require direct incentives but rather an appeal to altruistic motivators. The case study also demonstrates that education on environmental issues can facilitate voluntary and sustained behavior change. Given the potential role that college campuses can play in fostering creating ecological citizens of the future, let us now consider the extent to which colleges campuses are achieving this goal.

CHAPTER 4: RESULTS AND FINDINGS

Summary of Ecological Citizenship in Sustainability Plans and Policies

The results of a random sampling of 200 out of the 300 U.S. colleges and universities participating in the *College Sustainability Report Card*, indicate that roughly eighty percent [95% CI with margin or error ± 3%] of the most prominent four-year institutions in the United States address sustainability in some form of policy or plan including climate action plans, or dedicated sections of master and strategic plans, and formal sustainability plans and policies. While past research has not examined ecological

citizenship as a policy objective specifically within higher education, several colleges and universities in the United States do explicitly discuss citizenship in their sustainability plans and policies, either as an overarching goal, or as a normative value held by the institution. The first 12 schools listed in Table 1 mention ecological citizenship in their formal commitments. These schools were targeted for further analysis because citizenship is mentioned more than once, and the discussion of ecological citizenship was specifically referencing students. The next set of 12 schools listed in Table 1 did not mention citizenship in their plans or policies. These last schools were randomly selected out of an initial sample of 200, so that they could be compared to the schools discussing citizenship. Table 1 also provides a summary of each institution's STARS rating (if they participate in the program), its *2011 Sustainability Report Card* score, and its basic type of sustainability plan or policy.

Table 1. Sustainability Plans and Policies that Address Ecological Citizenship

Group 1: Schools that discuss ecological citizenship	*STARS rating*	*2011 Sustainability Report Card Score*	*Type of sustainability plan/policy*
Princeton University*	Silver	A-	Sustainability plan
Luther College*	Silver	A	Strategic Plan
Skidmore College*	N/A	B+	Sustainability policy and plan
Ohio University*	N/A	B	Master and strategic plans
University of Denver*	Gold	A-	Sustainability Plan
Yale University*	Silver	A	Sustainability plan
University of Maryland	N/A	A-	Master and strategic plan
Middlebury College	Gold	A-	Sustainability policy
Duke University	Gold	B+	Master and strategic plan
Oberlin College	Gold	A	Master plan and climate action plan
Bryn Mawr College	N/A	B+	Climate Action plan and sustainability policy
University of Georgia	N/A	A-	Master and strategic plans
Group 2: Schools that do not discuss ecological citizenship	*STARS rating*	*2011 Sustainability Report Card Score*	*Type of sustainability plan/policy*
Lewis and Clark College	N/A	C	No Plan or policy
Northwestern University	N/A	C+	No Plan or policy
UC Davis	N/A	A-	Sustainability policy, master and strategic plan
USC	N/A	B-	Sustainability policy, master and strategic plan
Georgetown University	N/A	B	No Plan or policy
University of Puget Sound	Gold	B+	Climate Action plan
Union College	N/A	B	No Plan
Harvey Mudd College	N/A	B+	Sustainability policy
Seattle University	N/A	B	Master and strategic plans
UNC Chapel Hill	Silver	A-	Sustainability plan and policy
Lehigh University	N/A	B-	Sustainability plan and strategic plan
Miami University	N/A	B-	No Plan or policy

**Plans include goals directly related to fostering ecological citizenship*

The first six schools marked with an asterisk in Table 1 include a dedicated section to student citizenship in their plan and therefore demonstrate a clear commitment to ecological citizenship. Furthermore, the identified institutions adopt ecological citizenship as a core policy goal and highlighted specific strategies and objectives for fostering ecological citizenship among students.

For example, in Princeton University's sustainability plan, environmental citizenship is introduced as a central value and broad goal held by the institution. The overarching idea throughout Princeton's sustainability plan is that preparing students to be informed and engaged environmental citizens requires increased student involvement and teaching by example. The plan specifically states "We believe that by serving as a laboratory for the development of new technologies and practices we not only contribute to and exemplify the range of behaviors needed to achieve a sustainable society, but we also involve our students in ways that will train them to be good environmental citizens in the future" (Princeton University, 2008:4) Princeton's civic engagement section lists specific goals and strategies, including increasing support for student sustainability initiatives, and increasing opportunities for students through the Office of Sustainability (Princeton University, 2008). Furthermore, the Eco-Rep program engages the student body in sustainability issues and responsibilities, and promotes sustainable practices among university community members through education (Princeton University, 2008). Princeton also discusses citizenship in a communications section, highlighting the need to expand the discourse about sustainability on campus, in the local community, and across the nation, as well as to increase student awareness of their responsibilities as global citizens (Princeton University, 2008). The specific strategies for raising awareness of

sustainability issues include increasing the visibility of sustainability initiatives in publications and online, and increasing signage around campus. Princeton also continues to challenge itself and serve as an exemplary model of sustainability by including ambitious quantitative reduction goals in its plan. For example, the school focuses on the reduction of solid waste, greenhouse gas emissions, the number of cars commuting to campus, and water usage.

While Princeton University's sustainability plan embraces ecological citizenship as a policy goal, the plan is oriented towards campus greening and educating students within the classroom setting rather than a commitment to community connections and civic involvement. Serving as a model of sustainability on campus will impact students' perceptions, however, more civic involvement is required when the goal of fostering ecological citizenship is considered. The next five schools listed in Table 1 have sustainability plans that follow a similar format, starting with an overview of the value and importance of citizenship, and the general commitment by the institution; this is followed by listing specific strategies and goals for advancing ecological citizenship among students.

Overall, the first six institutions in Table 1 share a common set of approaches to fostering ecological citizenship among students. These include increasing awareness and access to information, integrating sustainability into the curriculum, expanding and strengthening educational programs relating to sustainability, increasing community-based learning, deepening connections with the local community, and greening the university's operations. While all six schools addressed a range of goals, some placed more emphasis on a particular area. For example, while Princeton emphasizes reducing

its footprint and leading by example, the University of Denver stresses the importance of service learning as a component of public service. Yale University places particular importance on the actions of students outside the institution and in their lives post-graduation. They state that "environmental citizenship must extend beyond the university's academic enterprise" and students must be educated about "practices that can benefit their lives beyond Yale" (Yale University, 2010:21). Other interesting features include Luther College's goal of creating a Center for Sustainable Communities to serve as a catalyst for local and regional change, and Ohio University's identification of ecological citizenship, as expressed through the school's support of literacy, engagement, and fostering a sense of place. Skidmore College describes a vision of engaged liberal learning and collective social decision-making, whereby graduates become more informed and able to express their viewpoints effectively in the public realm. In order to do so "students must acquire the knowledge and hone the conceptual skills required to articulate, examine, reflect upon, and question their own beliefs as well as those of others" (Skidmore College, 2005:16).

These varied objectives demonstrate the numerous ways institutions are interpreting the notion of ecological citizenship. Furthermore, these schools represent the rare institutions with formal commitments and plans reflecting the goal of ecological citizenship. While these schools demonstrate leadership in terms of advancing ecological citizenship among students, there is of course always room for improvement.

Other schools within group 1 tend to acknowledge ecological citizenship, yet they do not dedicate a section of their plan or policy to it. For example, the University of Maryland acknowledges that it is important to strive for environmental responsibility and

awareness, and claims its students are amply prepared to serve "a lifetime of meaningful global citizenship" (University of Maryland, 2008:28). However, rather than including a dedicated section on student citizenship in its sustainability plan, the University of Maryland weaves the concept of citizenship throughout its plan. It contains a plurality of goals that support multiple dimensions of sustainability, and experiential learning is emphasized in particular. In comparison, other schools such as Duke University and Bryn Mawr College do not use ecological citizenship as an overarching policy framework. In these contexts, citizenship is referenced as a value. However, is not used as an overarching policy framework, or in reference to specific strategies or goals.

An important finding of the review of sustainability plans is that schools that discussed citizenship in their plans or policies are more likely to be involved in the voluntary STARS program and to have received high scores on *The Sustainability Report Card*. While there does not appear to be an advantage to any particular type of sustainability plan or policy, simply having a formal plan or policy corresponds to higher sustainability scores.

Within group 2 of Table 1 there was less mention of sustainability values, as well as the reasons for promoting sustainability on campus. This suggests that it is important for institutions to articulate a set of values and to possess a vision for advancing sustainability in order to guide the process of developing ecological citizens. Debra Rowe contends that "building a commitment to sustainability in the mission statement can produce administrative support for sustainability efforts at multiple levels of the institution, and help to move the organizational culture to include a sustainability paradigm" (Rowe, 2002:7).

An additional finding of this review of campus sustainability plans is that the general focus of the plans within group 2 schools was campus greening. A well-rounded and authentic policy should go deeper than simply creating a physically sustainable campus. Many schools have made progress in greening the physical campus and improving facilities operations. In these cases, integrating sustainability into the curriculum and strengthening community partnerships may not have been a priority. Ideally, fostering ecological citizenship among students can be implemented simultaneously with reducing the environmental impact of the campus itself. Schools within group 2 would create better ecological citizens by broadening the scope of their plans.

If colleges and universities are actively working to advance sustainability on campus, the social component of sustainability cannot be disregarded. Rather than solely focusing on the environmental aspect of sustainability, colleges should find ways to integrate the social and economic components of sustainability into their plans and actions, and bring students into the discussion. Furthermore, offering opportunities for learning through participation in school decision-making contributes to citizenship skills and can promote more active involvement. Creating a forum where students can provide feedback and openly discuss campus sustainability goals and ideas with administrators, faculty, and staff will be an effective tool in fostering citizenship among students, as well as provide more legitimacy to institutional decision-making. These findings suggest that colleges and universities that are actively working to promote sustainability on campus should find ways to involve students in the process and consider the value of student involvement.

Indicators of Ecological Citizenship in Higher Education

Fostering ecological citizenship within higher education first requires a commitment on the part of the college or university to that goal. In addition, several indicators will be used to determine what substantive actions schools have taken to foster ecological citizenship thus far. To determine the extent to which schools foster ecological citizenship, the actions of the schools will be classified into three distinct categories: (1) the promotion of environmental literacy, (2) civic and political involvement, and (3) private actions and sustainable behaviors. These categories represent the fundamental principles of ecological citizenship and schools that take actions to achieve them are fostering ecological citizenship. In order to determine which schools are successful in this area, several specific action-oriented indicators were chosen prior to the research, which correspond to each of these broad categories or principles. Thus, the chosen indicators reflect the actions of the institution, and more specifically, what the institution has done to promote a sense of citizenship among students. While many more indicators could be used to assess the promotion of ecological citizenship in students, the below indicators give a general idea of how effectively schools are addressing a range of different actions. The specific indicators that reflect the categories of ecological citizenship are as follows:

1) *New Student Sustainability Orientation*- Including sustainability in the freshman college orientation experience demonstrates to students early on that the college or university has a commitment to sustainable practices. Sustainability should be incorporated into orientation in multiple ways so that students are left with an impression that sustainability is something interwoven into campus life, and that all students have an

obligation to protect the environment. This kind of new student orientation also offers a forum where students can be educated on environmental issues, as well as learn about opportunities for involvement in sustainability on campus, or how to reduce one's ecological footprint. For the purpose of my assessment, schools received credit for this category if sustainability was featured prominently in orientation and was incorporated in several meaningful ways.

2) *Sustainability Focused Course Required for Graduation*- Some higher education institutions have chosen to include a sustainability-focused course as a general education requirement that all students must complete to graduate. The rationale behind this is to ensure that all students are taught about social responsibility and civic engagement and are instilled with the skills and attitudes needed to serve as positive change agents in society. Colleges and universities already require all students to complete a certain number of math, science, and English courses; however, sustainability and civic responsibility are fairly new concepts that have yet to be institutionalized in the formal core curriculum. While there may be some drawbacks and barriers to developing a required course in sustainability, a well-designed course can give students a basic understanding of environmental issues and can effectively shape future leaders that are more informed and well versed in terms of the environment.

3) *Student-Based Environmental Club Working with the Community or on Broader Sustainability Efforts*- Student-run environmental clubs serve as important vehicles for civic and political involvement and also tend to contribute to the environmental literacy

of their members and the campus community. Furthermore, environmental clubs that focus on broader sustainability efforts and work on sustainability initiatives in the local community will be most successful in fostering ecological citizenship among members. Hands-on experiences solidify the notion that organized groups and individuals can make a real difference when it comes to sustainable change. While a focus on greening the campus and educating peers is certainly an important cause, clubs that also stress political advocacy, real-world problems, and what can be done to advance sustainability in the surrounding community will have the most impact in inspiring students and shaping ecological citizens. Schools received this credit is they have an active and influential environmental club that meets these objectives.

4) *Service-Learning and Community-based Courses Related to Sustainability* - Student involvement and engagement in sustainability plays a significant role in fostering values of citizenship. The process of education must emphasize more active and experiential learning and real-world problem solving on the campus and in the larger community (Cortese, 2003:19). Experiential and service learning should focus on trying to reduce the ecological footprint of the campus and of the communities in which students live. Service learning refers to a form of experiential education that supports student learning while also supporting the service recipients, and service-learning courses also tend to include a classroom-based reflection on the experience. For example, the learning experience of students could include working on real-world problems of communities, government, and industry, as a normal part of the curriculum (Cortese, 2003:19). Also, working in groups can teach students to effectively collaborate as future managers and leaders (Cortese, 2003:19). This is critical as one of the problems with disciplinary understanding is that

we often have difficulty talking to each other. We have to learn to debate, collaborate, and cooperate in order to make a difference. Projects that encourage civic and political involvement can solidify learning by providing tangible experiences and examples and can serve as a bridge to further involvement post-graduation, as those experiences will have lasting impressions on students. One of the most effective ways students can become sustainable leaders is by encouraging on and off campus involvement in sustainability related activities and organizations and ensuring that students are actively engaged in sustainability efforts and decisions. The most successful programs that will shape lasting attitudes and behaviors will incorporate direct student participation.

5) *Student Sustainability Educators Program (e.g. student Eco-Reps)*- College is where many students will form lasting environmental habits and behaviors such as recycling and water conservation. Much of our private environmental behaviors occur where we live, which, in college, often means the dorms. The goal of student sustainability educators, such as Eco-Reps, is to foster green lifestyle behaviors among students living in the dorms. As previously argued, our private actions have equal weight in the conception of ecological citizenship since our personal actions can have consequences for others and the environment. Actions like recycling are important in that they can lead to the adoption of other green behaviors. While convenience and incentives may be immediate motivators behind a behavior like recycling, encouraging students to develop more altruistic motivations through education and opportunities for ongoing involvement will be critical, especially if the goal is to have students practice recycling habitually once they graduate college and are removed from the setting where recycling is more readily available. Common everyday activities like recycling and other activities associated with

conservation can also provide people with a sense of personal satisfaction. Many people do things that "feel good" even without the promise of tangible returns (De Young, 1985-1986). While student sustainability educator programs at many institutions are in their infancy, they have great future potential in terms of encouraging sustainable behavior among students as well as partnering with the school to make dorms greener.

6) *Model of Conservation: Move-in and Move-out Waste Coordination*- In order to solidify efforts to shape students into ecological citizens, higher education must practice what it preaches and make sustainability an integral part of the physical campus environment, operations, purchasing, and investments (Cortese, 2003:19). The university is a microcosm of the larger community and "the manner in which it carries out its daily activities is an important demonstration of ways to achieve environmentally responsible living and reinforce the desired values and behaviors in the whole community" (Cortese, 2003:19). The university has the opportunity to serve as a sustainable model to students and facilitate an understanding of the ecological footprint of materials and activities and decision-making within the university setting. Being immersed in an environment that demonstrates a commitment to sustainability will surely have an effect on a student's own values and behaviors. Coordination of move-in and move-out teaches students about effective waste management at significant points of a student's college career and demonstrates that the institution cares about its ecological footprint and the footprint of its students.

Substantive Actions Schools have taken to Advance Citizenship

Table 2.0 and 2.1 provide a summary of what substantive actions each school has taken. Table 2.0 represents schools that discussed ecological citizenship in their sustainability plans and policies and the schools in Table 2.1 do not.

Schools that discuss ecological citizenship in their formal sustainability commitments generally performed more sustainable actions overall than those that did not. Half of the schools in Table 2.0 fulfilled at least five out of the six criteria while only two schools in Table 2.1 did so. The notable exceptions to this trend include the University of North Carolina Chapel Hill and the University of California Davis. Both fulfilled several of the criteria for fostering ecological citizenship among students, despite the lack of formal citizenship discussion in their plans and policies. While the University of North Carolina does not discuss citizenship, the school signed the *Talloires Declaration* created in 1990, a statement that institutions of higher learning serve as world leaders in developing, creating, supporting and maintaining sustainability. The declaration specifically states that signatories educate for environmentally responsible citizenship and foster environmental literacy. Other relevant signatories include Middlebury College, Oberlin College, University of Georgia, Lewis & Clark College, and the University of Puget Sound ("Talloires Declaration," 2008).

Sustainability is prominently featured in new student orientations in a number of ways. For example, at Luther College, all new students participate in a service project during their first week on campus, and all service projects are sustainability-related. These projects have ranged from weeding out invasive species, helping out in the Luther College Gardens, and saving materials from demolished structures so they can be reused.

At Middlebury College, new students can take a sustainability tour of the campus and learn about opportunities to get involved in sustainability initiatives at the Sustainability Fair.

The University of Georgia is the only school in the sample to require that all students fulfill an environmental literacy requirement. The goal of the university's literacy requirement is to ensure students take one or more courses that teach the basic scientific principles which govern natural systems and the consequences of human activity on local, regional, and global natural systems (University Council of the University of Georgia, 1998). The advantage of requiring all students to take one of the designated environmental literacy courses is that environmental education and understanding is no longer limited to those students studying in an environmentally related field. All students can be exposed to environmental issues at some level. Debra Rowe states that the problem with relying on environmental majors and minors "as a sole strategy is that only the students who choose these minors receive these benefits instead of requiring sustainability courses for all undergraduates or infusing sustainability across the curricula to support the internalization of the sustainability paradigm" (Rowe, 2002:7). Rather than add an explicit environmental literacy requirement that mandates that all students take particular sustainability-focused courses, many schools have instead chosen to weave sustainability across multiple disciplines and integrate the concept into existing courses. However, by effectively integrating sustainability throughout the curriculum and across disciplines, students gain exposure to sustainability concepts in a way that relates to their own specific interests. This method is now typically favored over the literacy requirement. One criticism of Georgia's program is that "Many of the courses

students can take to satisfy the environmental literacy requirement don't teach much about the issues" (Shearer, 2012). There are still definite advantages however, to including an environmental literacy requirement, or requiring students to take an introductory sustainability course. For example, these courses might provide more direct examples of environmental concepts or incorporate service learning and active involvement, as well as notions of citizenship. Courses that incorporate hands-on experiences will have more of an impact on students, and are likely to have greater impact.

Most of the schools studied have a student-based environmental club that works with the community, or on broader sustainability efforts. For example, the Yale Student Environmental Coalition seeks "to partner with campus organizations, other colleges and universities, non-profits, and major international initiatives in order to bring our objectives to light at Yale, within New Haven, and around the world" ("Yale Student Environmental Coalition," 2012). The mission of the Environmental Concerns Organization at Luther College is to "think globally and act locally" by increasing awareness of ecological issues on campus and in the community and collaborating with the sustainability department on projects. While all of the 24 schools had an environmentally related club, some of the clubs lacked a mission or focus beyond campus sustainability. Student clubs offer the opportunity to expose students to greater issues and real world problems. Several of the clubs surveyed contained a political activism component as well, and dedicated efforts to national environmental issues and decisions.

Service learning is a particularly important tool that can be used to foster ecological citizenship among student and advance sustainability. The schools in Table 2.0

that discussed student citizenship in their sustainability plans performed notably better in the service-learning category. The University of Denver provides incentives for professors to develop service-learning courses through its Service-Learning Scholars Program. The program provides a stipend for faculty to develop a set of best practices for implementing service-learning projects. The University of Denver also supports a Center for Community Engagement and Service Learning that encourages community-based learning and public efforts and also seeks to develop "students into engaged citizens who actively participate in the public life of their communities" (University of Denver CCESL). Duke University offers a number of interdisciplinary service-learning courses related to sustainability including "Engineering Sustainable Design and the Global Community". This course involves working in partnership with a community agency and participation in an experimental learning process by engineering a design solution for an identified community need. At the University of Utah, students can take a course studying Lead Contamination of Utah's Jordan River. As part of a freshman chemistry course, students can participate in a service-learning project where they map the sediment of the Jordan River for lead, zinc, and copper (Miller, 1996). Some schools, such as Lehigh University, offer study abroad courses that emphasize service learning. However, immersion courses in different countries are less accessible to the general student body due to financial or curricular constraints. While these courses, such as Lehigh's Sustainable Development program in Costa Rica, are particularly fulfilling experiences for students, schools should also offer service-learning courses that are connected to more local communities, and are widely available.

Schools in Table 2.0 had slightly more Student Sustainability Educators Programs than schools in Table 2.1. Some of these programs are more comprehensive than others. For example, Princeton's Eco-Rep program promotes recycling, waste reduction, sustainability education, and research not only in the dorms but campus-wide. Eco-Rep programs are particularly useful for fostering citizenship and green behaviors among students, in that they address a range of sustainable activities in dormitories.

Coordinating student move-in and move-out is especially important in terms of waste diversion and serving as a model of conservation for students. These two events represent important teaching moments, when students are first joining a campus. While most schools have a move-out donation program, they neglect to focus on the move-in process such as recycling cardboard. Move-in and move-out policies are just one example of ways schools can serve as a model of conservation.

Table 2.0-Summary of Actions: Schools Discussing Ecological Citizenship in Plans/Policies

	Environmental Literacy		**Civic and political involvement**		**Private actions and Green behaviors**	
Colleges and Universities in the United States that discuss ecological citizenship	*Sustainability prominently featured in new student orientation*	*Environmental literacy requirement or required sustainability focused course*	*Student-based environmental club works with the community or on broader sustainability efforts*	*Service-Learning and community-based courses related to sustainability*	*Student Sustainability Educators Program (e.g. student Eco-Reps)*	*Model of conservation: move-in and move-out waste coordination*
Princeton University	X		X	X	X	X
Luther College	X		X			X
Skidmore College			X	X	X	
Ohio University			X		X	X
University of Denver				X	X	
Yale University	X		X	X	X	X
Duke University	X		X	X	X	X
University of Maryland	X		X	X	X	X
Middlebury College	X		X	X	X	X
Oberlin College	X		X	X	X	X
Bryn Mawr College	X		X	X		
University of Georgia	X	X	X	X		X

Table 2.1-Comparative Summary of Actions: Schools that do not Discuss Ecological Citizenship in Plans/Policies

	Environmental Literacy		**Civic and political involvement**		**Private actions and green behaviors**	
Randomly Selected Colleges and Universities in the United States that do not discuss ecological citizenship	*Sustainability prominently featured in new student orientation*	*Environmental literacy requirement or required sustainability focused course*	*Student-based environmental club works with the community or on broader sustainability efforts*	*Service Learning and community-based courses related to sustainability*	*Student Sustainability Educators Program (e.g. student Eco-Reps)*	*Model of conservation: move-in and move-out waste coordination*
Lehigh University			X	X	X	
Lewis and Clark College			X			X
Northwestern University			X		X	
UC Davis	X		X	X	X	X
USC			X			
Georgetown University				X	X	X
University of Puget Sound	X			X	X	X
Union College	X			X		
Harvey Mudd College	X		X		X	
Seattle University	X		X	X		
UNC Chapel Hill	X		X	X	X	X
Miami University			X			X

As hypothesized, schools that reference ecological citizenship in their formal sustainability commitments (group 1) performed more sustainable and citizenship-oriented actions overall than those that did not (group 2). P-values less than 0.05 are generally considered "statistically significant," meaning the result is not likely attributable to chance. The association between the two study groups and whether they performed sustainable actions resulted in a two-tailed p-value of 0.0180. Therefore, we can reject the null hypothesis that there is no difference between the two groups in terms of their ecological citizenship actions and that the difference in the frequency of actions taken by these two groups is likely not attributable to chance. Table 3.0 provides a summary of how many total citizenship indicators were fulfilled by each group.

Table 3.0- Ecological Citizenship Actions Contingency Table

	Indicator Fulfilled		
	Yes	**No**	**Total**
Group 1	49	23	72
Group 2	35	37	72
Total	**84**	**60**	**144**

LIMITATIONS OF STUDY AND FUTURE RESEARCH

A limitation of the study is that the chosen indicators do not offer a completely comprehensive view of ecological citizenship. While the indicators highlight particularly important actions of an institution in shaping student citizenship, several more indicators could be added to each of the three broad categories. Furthermore, since many colleges and universities are integrating sustainability throughout the curriculum rather than including an environmental literacy requirement, an analysis of sustainability across disciplines might be a more useful indicator for future studies.

This study also assumes that institutions that discuss ecological citizenship in their published plans and policies are the ones most dedicated to it. However, there may also be institutions that are committed to promoting ecological citizenship among students but have not integrated the concept into existing formal commitments. This study also looks at a small segment of institutions in the United States; therefore, trends among these schools are not necessarily representative of all higher education institutions.

Future research could focus on whether students are more civically involved or environmentally sensitive post-graduation. Ecological citizenship is a relatively new concept and universities just now getting around to addressing it and utilizing it as a policy goal. Future contributions in this area could involve studying the behaviors of a randomly selected group of college students and assessing their behaviors roughly ten years post-graduation to determine whether they adopt certain qualities of an ecological citizen.

CONCLUSION

Ecological citizenship is becoming more prevalent as a new environmental policy objective among colleges and universities in the United States. Andrew Dobson's conception of ecological citizenship contends we have certain obligations and duties to environmental protection and sustainability. The obligations of the environmental citizen are manifested in the civic and political realms, and through our daily actions and lifestyle choices. An altruistic concern for the environment born out of an understanding of environmental issues provides a foundation for the formation of an ecological citizen. Higher education institutions have the opportunity to shape society's future citizens and sustainability leaders, and can foster a lasting sense of ecological citizenship among students.

Several higher education institutions in the United States have integrated the concept of ecological citizenship into their sustainability plans and policies. While some schools dedicate whole sections of their plans to fostering citizenship among students, others acknowledge its value and importance in less explicit ways. Examination of some of the actions of several colleges and universities in the United States indicates that schools that value student citizenship, as expressed through formal commitments and plans, tend to emphasize more student-oriented sustainability goals and generally perform more sustainable actions overall than schools that do not mention ecological citizenship. Two universities in this study, the University Of California Davis and the University of North Carolina Chapel Hill, were exceptions to this trend. These schools do not explicitly discuss ecological citizenship but are considered leaders of sustainability.

Furthermore, schools including ecological citizenship in sustainability plans tended to focus more on the values behind sustainability and the reasons for promoting sustainability on campus. In comparison, the set of randomly sampled schools in Table 2.1 either had no sustainability plan or policy or lacked a clear vision and commitment to sustainability in that sustainability was conceived as solely in relation to greening the physical campus. In conclusion, this thesis argues that the sustainable actions of institutions have implications for future citizenship behavior and consequently for the health of our environment.

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Lehigh University, Bethlehem, PA

E-commerce Intern, 2011 Summer full time
Southern California Edison, Rosemead, CA

CEQA/NEPA Intern, 2010 Summer full time
AECOM, Camarillo, CA

Geology and Environmental Science Peer Tutor, 2009-2010
Lehigh University, Bethlehem, PA

Publications:
Environmental Justice and the Blythe Solar Power Project, Lehigh Review Journal, Spring 2011

Awards and Honors:
Lehigh Presidential Scholar
Dean's List: 6 semesters
Williams Prize writing award, Spring 2010 and 2011
Handwerk Prize for outstanding achievement in the field of Environmental Science
Member, Honors Society Phi Eta Sigma

Skills and Qualifications:
Microsoft Office (Excel, Word, PowerPoint, Outlook)
ArcGIS
Google Earth
SPSS (Statistical Package for the Social Sciences)
SiteCatalyst Web Analytics
Proficient in Spanish